

**WHAT IS CLAIMED IS:**

1           1.       A method of delivering video via a switched communication network comprising:  
2           transmitting one or more program streams from a head end node to one or more egress  
3 nodes via the switched network; and  
4           inserting one or more advertisements into the one or more program streams at the one or  
5 more egress nodes for delivery to individual subscribers such that a particular subscriber receives  
6 a program stream with an advertisement that corresponds to demographic characteristics of that  
7 particular subscriber.

1           2.       The method according to claim 1, further comprising the step of inserting splice  
2 points in the one or more program streams at the head end node.

1           3.       The method according to claim 2, wherein inserting one or more advertisements  
2 comprises splicing an advertising stream with a program stream, wherein the advertising stream  
3 includes the one or more advertisements.

1           4.       The method according to claim 3, wherein the step of splicing further comprises:  
2 responsive to a command to begin splicing, identifying a splice point in the advertising  
3 stream;  
4 buffering frames after the splice point in the advertising stream;  
5 identifying a splice point in the program stream;  
6 switching to the advertising stream; and  
7 outputting an ad-inserted stream that includes frames from the program stream and  
8 advertising stream,  
9 whereby the program stream and advertising stream are adaptively synchronized by  
10 aligning the splice points to enhance the quality of video transmission.

1           5.       The method according to claim 1, wherein N program streams are transmitted via  
2 the switched communication network and wherein N x M ad-inserted streams are created at the

one or more egress nodes, where N and M are integers and where M represents the number of demographic groupings of the individual subscribers.

6. The method according to claim 5, wherein the switched communication network is an ATM-based network and wherein N program streams are encapsulated in Internet Protocol (IP) packets for transmission in the ATM-based network.

7. The method according to claim 6, wherein the step of transmitting comprises multicasting the program streams via the switched communication network.

8. The method according to claim 7, further comprising the step of transmitting the ad-inserted streams to subscribers via a digital subscriber line (DSL) interface.

9. The method according to claim 7, further comprising the step of transmitting the ad-inserted streams to subscribers via an Ethernet interface.

10. The method according to claim 1, wherein the program streams supplied by the head end node include program streams provided to the head end node from a remote source and program streams provided to the head end node from a local source.

11. The method according to claim 1, wherein the step of inserting one or more advertisements includes:

receiving subscriber management information; and

selecting a particular advertisement based on the subscriber management information;

and

retrieving the particular advertisement at the one or more egress nodes

12. In a video distribution network including a head end node, one or more egress nodes, a service management system, and a switched communication network, wherein the head end node supplies one or more program streams via the switched communication network to the one or more egress nodes, a system for delivering video comprising:

at an egress node,

6 a router for receiving the one or more program streams,  
7 a storage element for storing advertisements, and  
8 a splicer element for inserting one or more of the stored advertisements into the  
9 one or more program streams for delivery to individual subscribers,  
10 wherein a particular subscriber receives a program stream with an advertisement that  
11 corresponds to demographic characteristics of that particular subscriber.

1 13. The system according to claim 12, wherein the one or more program streams  
2 include splice points and wherein the splicer element splices an advertising stream with a  
3 program stream, wherein the advertising stream includes one or more stored advertisements.

1 14. The system according to claim 13, wherein the splicer element comprises:  
2 a plurality of input processors, one of the plurality of input processors receiving the  
3 program stream and another of the plurality of input processors receiving the advertising stream;  
4 a plurality of data buffers, each of the plurality of data buffers coupled to a corresponding  
5 one of the plurality of input processors; and  
6 at least one output processor coupled to the plurality of data buffers,  
7 wherein, responsive to a splice point being identified in the advertising stream, one of the  
8 plurality of data buffers stores frames after the splice point in the advertising stream, and  
9 wherein, responsive to a splice point being identified in the program stream, the at least one  
10 output processor switches to the advertising stream so that a single bitstream is provided as  
11 output that includes frames from the program stream and advertising stream.

1 15. The system according to claim 12, wherein N program streams are distributed via  
2 the switched communication network and wherein N x M ad-inserted streams are created at the  
3 egress node, where N and M are integers and where M represents the number of demographic  
4 groupings of the individual subscribers.

1 16. The system according to claim 15, wherein the switched communication network  
2 is an ATM-based network and wherein N program streams are encapsulated in Internet Protocol  
3 (IP) packets for distribution via the ATM-based network.

1           **17.**    The system according to claim 16, wherein the program streams are distributed  
2 via multicasting in the switched communication network.

1           **18.**    The system according to claim 17, wherein the ad-inserted streams are distributed  
2 to subscribers via an interface selected from the group consisting of a digital subscriber line  
3 (DSL) interface and an Ethernet interface.

1           **19.**    The system according to claim 12, wherein the service management system  
2 provides subscriber management information to the egress node and, responsive to the subscriber  
3 management information, the egress node selects and retrieves a particular advertisement from  
4 the storage element based on the subscriber management information.

1           **20.**    A system for delivering video via a switched communication network comprising:  
2 a head end node for transmitting one or more program streams via the switched network;  
3 and  
4 at least one egress node for receiving the one or more program streams, the egress node  
5 including a splicer element for inserting one or more advertisements into the one or more  
6 program streams at the egress node for delivery to individual subscribers, such that a particular  
7 subscriber receives a program stream with an advertisement that corresponds to demographic  
8 characteristics of that particular subscriber.

1           **21.**    The system according to claim 20, wherein the head end node comprises:  
2 an encoder for receiving and encoding the program streams;  
3 an encapsulator for converting the encoded program streams into a format for  
4 transmission via the switched communication network; and  
5 a service management system in communication with the encoder, the encapsulator and  
6 the switched communication network for provisioning and managing distribution of video and  
7 demographically-targeted advertising.

1           **22.**    The system according to claim 21, wherein the head end node further comprises a  
2 storage element for storing encoded program streams for time-delayed delivery.